Notice of Allowability	Application No.	Applicant(s)	
	10/709,613	SCHIRMER, TIMO	
	Examiner	Art Unit	
	Tiffany A. Fetzner	2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the pre-appeal request of 3/20/2006 & the reopened prosecution of the current application*.

2. ☒ The allowed claim(s) is/are *1-20 of the October 19th 2005 amendment and response.*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☒ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Examiner's Comment

Drawings

1. Both the examiner and the official draftsperson have approved the drawings submitted May 18th 2004. [See the attached PTO 948 form.]

Prosecution reopened finality of last office action withdrawn

2. In response to the Pre-Appeal brief request of 3/20/2006, the finality of the previous Office action is hereby withdrawn and prosecution of the instant application is hereby reopened.

Response to Arguments

3. Applicant's pre-appeal request arguments of **March 20th 2006** have been fully considered, the arguments that the **Frigo et al.,** reference should be disqualified as prior art under 35 USC 103 (c) are not persuasive because the rejections made in the December 21st 2005 Office action were made under 35 USC 102. However, applicant's other arguments with respect to the scope of the claims have been reconsidered, and in view of those arguments the finality of the December 21st 2005 office action is withdrawn, and the instant application has been placed in condition for allowance in view of the examiner's reasons for allowance noted below. Because the application is now currently in condition for allowance, all other concerns unless noted herein in the examiner's comment above, are considered to be moot by the examiner.

The following is an examiner's statement of **Reasons for allowance**:

4. With respect to **Independent Claim 1**, from the **October 19th 2005 amendment and response**, The prior art of record, fails to teach, suggest or show the entire combination of:

Claim 1 ---A method of MR spectroscopy (MRS) comprising the steps of:

acquiring **a reference signal with a body coil**;

acquiring metabolite signals with a plurality of receive coils;

combining the metabolite signals to form a single MRS spectrum; and

scaling the single MRS spectrum as a function of intensity of the reference signal" ---, the examiner notes that the reference signal which is scaled in this claim was acquired with the fore mentioned body coil, in accordance with the first main limitation of this claim.

5. The **Frigo et al., prior art reference** fails to teach, show or suggest, that the magnetic resonance spectroscopy reference signal from the RF surface / local / body

RF coil 56; is utilized in **"scaling the single MRS spectrum",** (i.e. the combination of the acquired metabolite signals from the plurality of receive coils), **"as a function of intensity of the reference signal", which was acquired with the body coil,** because **Frigo et al.,** scales each coil, including the reference signal of RF coil 56 individually with respect to itself, over the volume of investigation. Stated another way **Frigo et al.,** fails to use the reference signal from the surface / local /body RF coil 56, to scale the combined spectrum from the separate plurality of receive coils, which was used in the acquisition of the metabolite signals.

6. The examiner also notes that none of the prior arts of record use a separate RF surface / local / body coil, in order to scale a composite MRS spectrum from metabolite signals acquired from a separate plurality of receive coils, which are different from the reference (surface / local / body) coil in MR spectroscopy methods. It is the entire combination of features and limitations taken as a whole, which distinguishes applicant's **independent claim 1** from the prior arts of record.

7. With respect to **dependent claims 2-7** from the **October 19th 2005** amendment and response, each of these claims are considered to be allowable by the examiner because they depend from **allowable independent claim 1** of the **October 19th 2005 amendment and response**.

8. With respect to **Independent Claim 8**, from the **October 19th 2005 amendment and response**, the prior art of record, fails to teach, suggest or show the entire combination of:

Claim 8 ---An MRS apparatus comprising:

a magnetic resonance imaging (MRI) system having a plurality of gradient coils positioned about a bore of a magnet to impress a polarizing magnetic field and an RF transceiver system and an RF switch controlled by a pulse module to transmit RF signals to an RF coil assembly to acquire MRS data, the RF coil assembly having phased array coils and a body coil; and

a computer programmed to scale a composite signal of metabolite signals acquired with the phased array coils based on a reference signal acquired with the body coil." ---, The examiner notes that in **claim 8** of the **October 19th 2005 amendment and**

response, the scaling of the composite metabolite signals acquired from the phased array coils is scaled with a reference signal from a separate body coil, which is not part of the phased array coils in the original MRS acquisition, and that the scaling in of the composite spectrum and not each individual coil.

9. The **Frigo et al., prior art reference** fails to teach, show or suggest, that the magnetic resonance spectroscopy reference signal from the RF surface / local / body RF coil 56; is utilized in **"scaling** a composite signal of metabolite signals acquired with the phased array coils based on a reference signal acquired with the body coil**"**, because **Frigo et al.,** scales each coil, including the reference signal of RF coil 56 individually with respect to itself, over the volume of investigation. Stated another way **Frigo et al.,** fails to use the reference signal from the surface / local /body RF coil 56, to scale a composite signal of metabolite signals acquired with the phased array coils.

10. The examiner also notes that none of the prior arts of record use a separate RF surface / local / body coil, in order to scale a composite MRS spectrum from metabolite signals acquired from separate phased array coils, which are different from the reference (surface / local / body) coil in MR spectroscopy apparatuses with implemented methods. It is the entire combination of features and limitations taken as a whole, which distinguishes applicant's independent **claim 8** of the **October 19th 2005** amendment and response from the prior arts of record.

11. With respect to **dependent claims 9-14** from the **October 19th 2005** amendment and response, each of these claims are considered to be allowable by the examiner because they depend from **allowable independent claim 8** of the **October 19th 2005 amendment and response**.

12. With respect to **Independent Claim 15**, from the **October 19th 2005 amendment and response**, the prior art of record, fails to teach, suggest or show the entire combination of:

Claim 15 --- A computer readable storage medium having a computer program stored thereon to perform an MRS exam and representing a set of instructions that when executed by a computer causes the computer to:

acquire unsuppressed MRS water signal with a transmit and receiver coil;

acquire MRS metabolite signals from a plurality of receive coils;

combine the MRS metabolite signals to form an MRS composite spectrum; and scale the MRS composite spectrum to an intensity of the unsuppressed MRS water signal. ---, the examiner notes that the unsuppressed MRS water signal which is scaled in this claim was acquired with the fore mentioned transmit and receiver coil, in accordance with the first main limitation of this claim.

13. The **Frigo et al., prior art reference** fails to teach, show or suggest, that the magnetic resonance spectroscopy reference signal from the RF surface / local / body RF coil 56; is utilized in **scaling** the MRS composite spectrum to an intensity of the unsuppressed MRS water signal**",** which was acquired with the separate transmit and receiver coil**,** because **Frigo et al.,** scales each coil, including the reference signal of RF coil 56 individually with respect to itself, over the volume of investigation. Stated another way **Frigo et al.,** fails to use the unsuppressed MRS water signal acquired from the reference signal from the RF transmit and receiver coil 56, to scale the combined MRS metabolite signals which form the MRS composite spectrum, (i.e. which was acquired from the plurality of receive coils), to an intensity of the previously acquired unsuppressed MRS water signal which was acquired with a transmit and receiver coil , which is different from the plurality of receive coils, that were used in acquiring the MRS metabolite signals.

14. The examiner also notes that none of the prior arts of record use a separate RF transmit and receiver coil in order to scale a composite MRS spectrum from metabolite signals acquired from a separate plurality of receive coils, which are different from the reference transmit and receiver coil in MR spectroscopy methods implemented via a computer readable storage medium with instructions for executing the program stored thereon. It is the entire combination of features and limitations taken as a whole, which distinguishes applicant's independent **claim 15** of the **October 19th 2005** amendment and response from the prior arts of record.

15. With respect to **dependent claims 16-20** from the **October 19th 2005** amendment and response, each of these claims are considered to be allowable by the

examiner because they depend from **allowable independent claim 15** of the **October 19th 2005 amendment and response**.

16. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Prior Art of Record

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A) **Frigo et al.,** US patent 6,891,371 B1 issued May 10th 2005, filed July 9th 2003.

B) See the attached **PTO 892 Notice of References cited form** attached to this Office action, and the Office action of October 5th 2005.

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tiffany Fetzner whose telephone number is: (571) 272-2241. The examiner can normally be reached on Monday-Thursday from 7:00am to 4:30pm., and on alternate Friday's from 7:00am to 3:30pm.

19. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez, can be reached at (571) 272-2245. The **only official fax phone number** for the organization where this application or proceeding is assigned is **(571) 273-8300**.

20. Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system Status information for published applications may be obtained from either Private PMR or Public PMR. Status information for unpublished applications is available through Private PMR only. For more information about the PMR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PMR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TAF
March 28, 2006

Diego Gutierrez
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